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NORTHERN NOVELTIES

Department of Horticulture,
South Dakota State College of
Agriculture and Mechanic Arts,
Brookings.

for 1925

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NECESSARY EQUIPMENT FOR ORIGINATING HARDY FRUITS

The long list of hardy plums and other fruits introduced by this Department was made possible by the Fruit-breeding Greenhouse given to State College a few years ago by the South Dakota State Legislature. But the work now under way has greatly outgrown this house. In order to prevent any check in the development of this work a new Fruit-breeding greenhouse should be provided. The word "greenhouse" does not give the right idea. This is really a laboratory for originating new fruits. A cellar and cold storage building for the storage of fruit trees and fruits is also needed. The lack of this necessary equipment greatly hampers any future development and

a host of new plans
must remain only dreams
until facilities are provided for their development. More land suitable for horticulture at Brookings is also needed. The Waneta plum is the best out of 10,000 seedling plums. The Anoka is probably the best out of 10,000 seedling apples. It is best to work with large numbers.

OKA CHERRY

Introduced fall 1924. This is not really a cherry but is a good substitute for a cherry. It is a Sand Cherry hybrid, a seedling of Champa. Black red flesh, rounder than Sapa and color brighter on outside. The original one year seedling tree bore fruit in 1923, the year after planting, and again in 1924. Plant of bushy habit but taller than the Tom Thumb Cherry. I received a letter from a Canadian friend asking that I develop a cherry that would dry up and stay on the bush until the farmers found time to pick them. I thought this was a tall order for one day, but shortly after I went out into the seedling nursery and found the plant, which I have named the Oka Cherry. The fruit dries into a sweet prune-like fruit and later can be cooked up into excellent sweet sauce. So after all I find this Oka Cherry filling the demand of my Canadian friend, although I would not recommend leaving the fruit on the trees too long as they are too tempting.

Price of Oka Cherry, one year buds on native plum roots, each 50 cents.

LAVATERA THURINGIACA

A tall growing perennial flower brought by N. E. Hansen in 1913 from the dry steppes of Semipalatinsk, Siberia. Height, 6 to 7 feet. Branching habit. Flowers large, pink, somewhat like single Mallovs or Hollyhocks. F. L. Skinner at Dropmore in northwestern Manitoba reports this hardy and that it blooms all season.

Seeds, per packet, 50 cents.

THIRTY-TWO NEW HARDY GRAPES

HARDY GRAPES FOR SOUTH DAKOTA

The Concord grape first fruited in 1849 and was grown from seed of the wild Fox grape, *Vitis Labrusca*, by E. W. Bull of Concord, Massachusetts. Several years ago I visited this original vine at Concord, Massachusetts, near the famous bridge still standing from the American Revolution.

"By the rude bridge that arched the flood,
Their flag to April's breeze unfurled,
Here once the embattled farmers stood
And fired the shot heard round the world."

The vine is marked by a permanent tablet. It seems eminently fitting that this Mother vine is so honored when we reflect that 75 per cent of all the grapes raised in eastern America come from this famous Concord vine and its pure breeds and cross-breeds. But the Concord grape and its offspring, great as they are, will not help South Dakota and the prairie Northwest since even with careful winter protection they are not sufficiently hardy.

For many years past I have worked on this problem and have grown a lot of seedlings of the wild grape of the Dakotas, but this was very slow work as this wild grape is not equal to the wild Fox grape of Massachusetts in size in its original condition. So I began crossing the wild grape of the Dakotas with some of the choice tame grapes. This was done in the Fruit-breeding Greenhouse of South Dakota State College. The work was a success. I now offer for the first time thirty-two of these seedlings. All are hardy at Brookings without winter protection of any kind. This marks the beginning of a new era in grape culture for the prairie Northwest. These original vines were planted first on land that was too low and wet and had to be moved on to higher land. Otherwise, these grapes would have come out several years ago. Suitable land for such work is greatly needed at Brookings. Why should it be necessary to crowd such immensely valuable fruit seedlings, like sardines in a box? A display of these varieties has been the past three years at the South Dakota State Fair and have been greatly admired. Of some varieties only a few vines are available and a few cuttings; of other varieties only cuttings are available. Cuttings are more for the expert propagator as they must be buried upside down with 4 inches of mellow earth over, until the root-end callus is formed, then planted right side up clear up to the top bud in the garden or nursery. I do not recommend cuttings to the inexperienced amateur.

However, to those who wish to try, directions will be sent.

The stock is limited so the choice of varieties must be left to me, although individual preference will be recognized if possible.

Price of vines, each \$1.00.

Price of cuttings, 2 for 50 cents; 5 for \$1.00.

Note on pedigrees: In the following list the pistillate or seed parent is named first and the pollen parent second. By S. D. Wild is meant the wild grape collected at Fort Pierre, South Dakota. By N. D. wild is meant the wild grape collected at Bismarck, North Dakota. The names of these grapes are all taken from the Sioux Indian language.

ARIKARA GRAPE

Pedigree: Lady x N. D. wild. A fine white, sweet, very productive grape with large berries in long bunches. Berries, five-eighths inch in diameter; seeds separate easily from the pulp. Exhibited at South Dakota State Fair three years in succession. Vines and cuttings.

ATKAN GRAPE

Pedigree: Lady x N. D. wild. Sweet, medium size, white with pink tinge. Long bunch. Cuttings only.

AZITA GRAPE

Pedigree: Beta x Lindley. Large black fruit, five-eighths inch in diameter; flavor rather wild; strong grower, fair crop. Cuttings only.

CADDO GRAPE

Pedigree: Beta x Agawam. Large, black, sweet grape of good flavor; size nine-sixteenths inch in diameter. Seeds separate easily from the rather firm flesh. Cuttings only.

CHONTAY GRAPE

Pedigree: Massasoit x Beta. Strong grower; fruit very large, bluish purple; very good flavor. Seeds separate readily from the flesh. Cuttings only.

CHONKEE GRAPE

Pedigree: Lady x N. D. wild. A yellow white grape of good size and quality. Vine, a strong grower and productive. Cuttings only.

EDAPA GRAPE

Pedigree: Merrimac x Beta. Large, black, good quality. Seeds separate easily. Vines and cuttings.

EMANA GRAPE

Pedigree: Beta x Agawam. Our largest grape in 1924. Rich, purple, black, fully as large as Concord, borne in close compact clusters, about three-fourths inch in diameter. Flavor good intermediate between the wild flavor of Beta and the high class rich, sweet, aromatic flavor of Agawam. Cuttings only.

EONA GRAPE

Pedigree: Lady Washington x Beta. A fine white, sweet, very productive grape. Berries about one-half inch in diameter. The ripest berries have a tinge of pink. Vines and cuttings.

LACHALA GRAPE

Pedigree: Lady x N. D. wild. A white grape of good size and quality; strong grower and very productive. Cuttings only.

LUZA GRAPE

Pedigree: Merrimac x Beta. A fine sweet, meaty, red grape, somewhat larger than Beta. Vines and cuttings.

MANDAN GRAPE

Pedigree: Wilder x N. D. wild. An early and very heavy bearer, the first of all of these hybrids to bear. Fruit black, one-half inch in diameter; good flavor. Seeds separate very readily from the flesh. Cuttings only.

MANOTA GRAPE

Pedigree: Merrimac x Beta. Our largest grape in 1922. Fruit as large as Concord, being three-fourths inch in diameter; color, black with bloom. The quality is between the fancy quality of Merrimac, its seed parent, and the sprightly wild flavor of Beta, the pollen parent. Seeds separate easily from the pulp. This will probably be very popular. The flavor is really very good. Cuttings only.

NAPKA GRAPE

Pedigree: Salem x Beta. A strong grower and very heavy bearer; fruit black, small about Beta size; good flavor; bunches compact. Cuttings only.

NOMPAH GRAPE

Pedigree: Lindley x S. D. wild. A large, black grape; good flavor; size, eleven-sixteenths inch in diameter. Vines and cuttings.

OGLALA GRAPE

Pedigree: Merrimac x Beta. Vine productive, fruit large, five-eighths inch in diameter. Fruit black, of good flavor; seeds separate very readily from the flesh. Vines and cuttings.

ONAKA GRAPE

Pedigree: Beta x Salem. A fine productive, large, sweet, white grape, turning to pink as it ripens. Berry about nine-sixteenths inch in diameter. Seeds separate easily. Cuttings only.

PONTIGO GRAPE

Pedigree: Lady x N. D. wild. Fruit very large, five-eighths inch in diameter; color, white turning to light red with white bloom; seeds separate readily from the sweet flesh. Vines and cuttings.

OSBU GRAPE

Pedigree: Beta x Agawam. Fruit black, a trifle larger than Beta and of Agawam flavor. Vines and cuttings.

REE GRAPE

Pedigree: Lady x N. D. wild. A very heavy bearer; fruit of large size, three-fourths inch in diameter; green with white bloom. Seeds come out easily. Season late. Vines and cuttings.

SANTEE GRAPE

Pedigree: Merrimac x Beta. Vine a very heavy bearer of large black grapes borne in large bunches. The largest of all the seedlings in 1922, the berry being three-fourths inch in diameter, nearly Concord size. The fruit is meaty, rather sour but of good clear flavor; seeds separate easily from the pulp. Vines and cuttings.

SHAKOKA GRAPE

Pedigree: Lady x N. D. wild. Fruit very large, round, black, nearly Concord size. Good quality. Seeds separate readily from the pulp. Vine, a very strong grower and very heavy bearer. Cuttings only.

SIPOSKA GRAPE

Pedigree: Lady x N. D. wild. Large, black grape; five-eighths inch in diameter. Cuttings only.

SONONA GRAPE

Pedigree: Lady x N. D. wild. A very heavy bearer of large white grapes with light pink tinge turning to light red with white bloom as they open. Berries five-eighths inch in diameter; seeds separate readily from the pulp. Flavor, sweet with a trace of the wild grape, but sweet and good when ripe. Vines and cuttings.

TAHAMA GRAPE

Pedigree: Lady x N. D. wild. Fruit, large, black, sweet. Seeds part readily. Vine, a strong grower and heavy bearer. Berries nine-sixteenths inch in diameter. Cuttings only.

TEOPA GRAPE

Pedigree: Lindley x S. D. wild. A fancy sweet, good grape; golden green with white bloom; eleven-sixteenths inch in diameter. Cuttings only.

TOSCHA GRAPE

Pedigree: Lady x N. D. wild. Fruit cropper. Fruit, five-eighths inch in diameter. Flesh sweet, somewhat firm and meaty. Bunch compact; seeds separate easily. Cuttings only.

WACHEPA GRAPE

Pedigree: Lady Washington x Beta. A large creamy white grape, good flavor; seeds separate easily. Cuttings only.

WAKPALA GRAPE

Pedigree: Merrimac x Beta. Fruit very large, black, good flavor. Bunch long. Cuttings only.

WECOTA GRAPE

Pedigree: Lady Washington x Beta. Sweet, meaty, yellow with bloom. Bunch small, compact; berry about nine-sixteenths inch in diameter. Cuttings only.

WETONKA GRAPE

Pedigree: Beta x Salem. Large, black grape; strong grower, heavy cropper. Fruit, five-eighths inch in diameter; flavor rather wild; seeds separate easily from flesh. Cuttings only.

YASOTA GRAPE

Pedigree: Merrimac x Beta. Fruit large, black, eleven-sixteenths inch in diameter; flavor wild; compact bunch. Cuttings only.

TEN NEW GOOSEBERRIES

The largest gooseberries in the world are those grown in western Europe. A few years ago I succeeded in crossing these giant gooseberries with the wild Sioux Valley gooseberry (*Ribes gracile*), from Lake Oakwood and Gary, South Dakota. This work was done in the Fruit-breeding Greenhouse at South Dakota State College. The European gooseberries did not live long even with special care, but long enough to make a cross. In the spring of 1924 the Sunset Gooseberry was offered for the first time as the first result of this work. The following ten varieties are now offered for the first time. The names are taken from the Sioux Indian language, and are not difficult to pronounce if the accent is given on the penult (next to the last syllable). I prefer names rather than numbers for the new fruits as there is less danger of confusion. A few plants only are available of each of the following ten varieties, but if these layers are given good cultivation they will soon furnish more plants.

Price of plants, each one dollar.

KAWANKA GOOSEBERRY

Fruit green with transparent skin. Size large, 13-16 x 11-16 inch in diameter. Bush of upright habit, very productive.

KOPA GOOSEBERRY

Bush very productive. Fruit large, green; size 3-4 x 5-8 inch in diameter.

KADUZA GOOSEBERRY

Round, oval, 7-8 x 5-8 inch in diameter; dark red, excellent table quality. Very productive; largest in 1922.

KAZONTA GOOSEBERRY

A large, fine, round, smooth red gooseberry, 7-8 x 3-4 inch in diameter. Bush a good grower and productive.

KANA GOOSEBERRY

Bush of strong growth and very productive. Fruit large, dark red.

KATAGA GOOSEBERRY

Berry large, light red, smooth; 13-16 x 3-4 inch in diameter. Bush strong, upright growth, productive.

KANEGA GOOSEBERRY

Bush of vigorous growth, very productive. Fruit green, with transparent skin; size 13-16 x 11-16 inch in diameter. The original plant bore 4 pounds, 4 ounces of fruit in 1923 in crowded plantation.

KEZA GOOSEBERRY

A fine round red gooseberry; 3-4 inch in diameter. Bush strong, upright, productive.

KAPOZA GOOSEBERRY

Very productive. Fruit large, fine dark red, oval; 7-8 x 5-8 inch in diameter and runs about 8 to the ounce.

KABU GOOSEBERRY

Bush of strong growth and heavy producer of large red fruit. The original plant bore 4 pounds, 7 ounces in 1923 in a crowded plantation.

HORTICULTURAL EXPLORATIONS

October 17, 1924, I returned from my sixth tour to foreign lands in search of new plants of horticultural and agricultural value. This time the tour was of twelve weeks to North China by way of Japan and Korea in search of hardy pears resistant to blight. From many thousand pounds of the fresh fruit gathered in the mountains of North China, sixty-eight pounds of seed was selected and is now stratified in sand for spring sowing. It is my hope to send this material out as one year seedlings for spring 1926. Much other material was obtained, including new plums, apricots and other orchard fruits, various ornamentals, some farm seeds, vegetables and especially some new melons.

In 1923 I made two trips to Canada to collect new plant material. In 1923 two trips were made by Professor E. J. Petry to the Black Hills to collect new plant material. There are many plants of horticultural value in the Black Hills that should be brought into cultivation and further developed.

STATE ORCHARDS

Two years ago the Legislature appropriated \$10,000 annually for two years, beginning July 1, 1923. The work has been started at several places, especially Sioux Falls, Watertown, Aberdeen, Philip, Pierre and Eureka. Cooperative tests are also being carried on at Hot Springs, Custer, Rapid City and Plankinton. The object of the work is:

- 1—To test all the standard varieties.
- 2—To demonstrate the best systems of orchard management.
- 3—To test out many thousands of new seedlings which I am originating every year.
- 4—To establish stock orchards, especially for the Siberian wild blight-proof pears and wild apples, to grow hardy seedlings upon which to bud the new hybrids coming on. Many of these nursery stock seedlings can be sold to propagators which would make the work partly self-sustaining.
- 5—To collect new plant material for fruit breeding.

MAGA CRAB

Introduced 1922. A seedling of MacIntosh Red apple top-grafted on Virginia crab. Fruit large for a crab, flattened, with bright red stripes. The MacIntosh evidently contributed its high flavor as the flesh is of the same type. Season evidently late. This tree looks like a good cross of the MacIntosh apple and the Virginia crab, and if it proves hardy under propagation will be something decidedly worth while. The original tree bore a heavy crop in 1919.

Trees, one year buds on seedlings of Yellow Siberian crab, each \$1.00.

RUSSIAN WHITE APPLE

Introduced fall 1924. Noteworthy for its snow white color and a favorite at our State Fair exhibits. A good summer apple; flesh snow white, juicy, sprightly subacid. This tree is growing in the old Russian apple orchard here at State College and the name, Russian White, is given until the real name can be determined.

Trees, one year buds on Siberian Crab stock, each \$1.00.

DOLGO CRAB**A New Red-Jellied Siberian Crab**

At the annual exhibits of this Department at the South Dakota State Fair many have asked about the remarkably long, conical, intensely bright red crabs we used in making letters. This is one I brought over from my second trip to Russia in 1897. A vigorous productive tree and so far free from blight. Fruit full of juice, jells easily, makes a rich ruby red jelly of beautiful color and excellent flavor.

The one year old trees in nursery are of strong growth with wide spreading forks and strongly shouldered limbs, indicating that they will not split down easily. The Dolgo bears very early and abundantly.

Trees, one year buds on seedlings of Alexis and Olga crabs, each \$1.00.

OLGA CRAB

Introduced 1919. Pedigree: Female parent, Duchess of Oldenburg apple. Male parent, *Pyrus baccata cerasifera*, which is much like the old Cherry crab. This combines the Russian apple with the Siberian crab. Fruit is regular, oblate, fully 1½-inch in diameter on the original seedling tree. Color solid bright cherry red all over with blue bloom; dots distinct, white, many large; basin quite shallow, smooth; cavity wide, obtuse with considerable russet. Calyx mostly deciduous. Flesh is yellow with red core outline. Very good to eat raw as it mellows. The fruit cooks up very quickly as easily as the Duchess apple itself, and the sauce is of an attractive deep salmon red. Under propagation the trees may slightly increase in size of fruit. The tree is a vigorous stocky grower with strong forks and extremely productive.

Trees, one year buds on seedlings of Yellow Siberian crab, each \$1.00.

LINDA SWEET CRAB

Introduced 1923. A seedling of Malinda apple top-grafted on Sweet Russet Crab apple. A large crab apple with skin much russeted. Flesh mild, subacid sweet. Apparently a late winter crab. The influence of the Sweet Russet pollen is evident from the sweet flesh and russet skin. Linda is derived from the word Malinda.

Price of trees, one year buds on seedlings of Yellow Siberian crab, each \$1.00.

BEAUTY CRAB

Introduced 1919. One of our seedlings of *Pyrus baccata cerasifera* raised from seed received from the Botanical Gardens at Petrograd, Russia. The name Beauty has been given to this seedling because it is perhaps the brightest in color of all our crab seedlings. It is a brilliant solid cherry red all over with orange red underneath especially on the shaded side. Size is about one and one-fourth inch in diameter. Tree is a very heavy bearer. The fruit makes a bright red sauce like the Hyslop crab but the flesh has not the astringency of the Hyslop. We have kept the fruit into January in a rather warm cellar. Tree is very stocky, a vigorous grower with wide and strong forks and strongly resistant to blight.

Trees, one year buds on seedlings of Beauty crab, each \$1.

KOLA CRAB

Introduced 1922. A hybrid of the wild native crab apple from Elk River, Minnesota, with pollen of Duchess of Oldenburg apple. The fruit is flat, green, full two inches in diameter on the original tree fruiting in greatly crowded nursery rows of seedlings. The skin is oily as in the wild crab. The fruit cooks up into an acceptable sauce. Trees have strong forks and appear immune to blight and winter killing. Kola is the Sioux Indian name for "friend." The heaviest specimen of Kola in 1919 weighed three ounces; the largest was two and one-half inches in diameter. This was the first year of fruiting.

A beautiful tree for the lawn for all who like fragrant pink and white wild crab blossoms.

Price of trees, one year buds on seedlings of Alexis Crab, each 75 cents.

SHOKO CRAB

Introduced 1922. A hybrid of the wild crab of Elk River, Minnesota with pollen of Alexander apple, one of the largest Russian apples. Fruit nearly two inches in diameter, green, acid, but cooking into an acceptable sauce. The size of the fruit will probably increase, as the original tree is much crowded in nursery rows. Shoko is the Sioux Indian for "seven."

A beautiful tree for the lawn for all who like fragrant pink and white wild crab blossoms.

Price of trees, strong one year buds on seedlings of Yellow Siberian crab and Alexis crab, each 75 cents.

TIPI CRAB

Introduced 1922. Also a hybrid of the wild crab of Elk River, Minnesota, with pollen of the Duchess of Oldenburg apple and much the same in tree and fruit as Kola. Tipi is the Teton Indian for "tent."

A beautiful tree for the lawn for all who like fragrant pink and white wild crab blossoms.

Price of trees, one year old buds on seedlings of Alexis crab, each 75 cents.

APPLES ON SIBERIAN CRAB STOCKS

The frequent losses from root killing of the common apple stocks used in the nurseries indicated the need of harder stocks for the apple. This question was discussed in Bulletin 65 of this Station. For some years past Siberian crab seedlings have been used in this Department as stocks for new apples to obviate the loss from root-killing. In order to make an exact comparative test it is often desirable to plant trees of standard varieties of the same age and propagated by the same method.

GOLDO APPLE

Introduced 1922. A seedling of Grimes Golden top-grafted on Duchess of Oldenburg apple, which appears to combine the hardness of Duchess with the yellow color and high quality of Grimes Golden.

Price of trees, one year buds on Beauty crab seedlings, each 75 cents.

HOPA RED-FLOWER CRAB

Introduced 1920. Hopa is the Sioux Indian word for "beautiful." A promising addition to our list of ornamental trees for the lawn owing to its wealth of beautiful deep rose crim-

son blossoms. A striking sight when in bloom. The fruit is too small to be of value for eating, being less than one inch in diameter, but its bright red color will light up the tree in autumn, and the small size is an advantage as the tree is less apt to be stripped for fruit when standing on the lawn. Female parent Pyrus Malus Niedzwetzkyana, a small red-fleshed apple from Turkestan in the high mountains between Turkestan and China, male parent Pyrus baccata. This was not a hard cross, but I am satisfied that the baccata was the pollen parent. Trees of strong growth in nursery.

Price of trees: One year buds on seedlings of Dolgo crab, each \$1.00.

BREEDING HARDY PEARS

The large fancy quality pears of England, France and other countries of western and southern Europe are in large part the work of one man, Van Mons of Belgium, about one hundred years ago. The idea of Van Mons was to grow as many thousand seedlings of pears as possible, select the best and grow seedlings from them for the next generation. He had as high as 80,000 pear seedlings at one time. Very wonderful variation was observed in these seedlings and the seedlings of each generation showed great improvement over the preceding one. This is a very brief summary of Van Mons' work. But all this work will not help South Dakota, except as these pears are used as parents in the pear breeding work.

In the spring of 1921 I visited some of the best collections of cultivated pears in Arkansas, Missouri, Iowa and Illinois, to obtain pollen for use in this great enterprise of originating hardy blight-proof pears of large size and good quality by mating the choicest pears of Europe, the largest pears in the world, with the small-fruited but hardy and blight-proof pears of Siberia. In the Fruit-breeding Greenhouse at South Dakota State College much work of this kind has been done. Many hybrids have already been originated and at least three of these hybrids are of full commercial size and appear worthy of propagation. I have a lot more coming on.

But now I have secured a lot of seed of the hardest pear in the world from my trip to North China in the summer of 1924. We must raise as many thousand seedlings through as many plant generations as possible. The starting point we have in this North China and Siberian pear is as good as, or even better than the foundation stock that was used and developed by Van Mons of Belgium.

RUSSIAN SAND PEAR

In noting the behavior of the many pears imported from Northern Europe and Asia and other countries, special attention is attracted to Pyrus Sinensis as received from Russia under the name of Pyrus Sinensis R & K 453. These trees have proven hardy and have borne abundant fruit. We raised good seedlings from them. The trees have been very resistant to fire blight. The fruit is small but good for cooking. These seedlings are worthy of planting for those who wish to breed hardy pears and the fruit is valuable for the seed from which to raise hardy seedlings for budding or grafting.

Price, one year seedlings, 3 for \$1.

TAWENA PLUM

Introduced fall 1924. A full sister to the Waneta and Kahinta, and originated at the same time. Not quite as large as Waneta, fruit more round, an immense bearer. This has been much admired at our State Fair exhibits and the introduction has been urged. The name is a rearrangement of the name Waneta.

Prices of trees, one year buds on native plum stock, each \$1.00.

OTHER NEW PLUMS

Of my other new plums we have a fine assortment this year, most of these in small lots only because we are budding a set for our new plum orchards. Varieties available this year are: Assiniboin, Cree, Hanska, Kaga, Kahinta, Ojibwa, Opata, Oziya, Pembina, Sapa, Teton, Wachampa, Waneta, Winnipeg.

All these varieties have been described in price lists of former years, copies of which will be sent upon application as long as the supply lasts.

Price of trees, one year buds on native plum stock, each \$1.00.

BREEDING HARDY RASPBERRIES

The work at this Station was described in my spring list for 1922. Out of 13,000 seedlings the following eight have been named: Sunbeam, Ohta, Spineless, Fewthorn, Starlight, Moonbeam, Smooth Cane, Twilight. These are hybrids of the wild red raspberry of South Dakota and regions north into Canada with tame varieties. The object of this work is to develop red raspberries that will be hardy without winter protection. Therefore, they are not intended to compete with the larger fruited varieties that need to be protected in winter by laying down the canes and covering with earth.

Plants of any of these varieties, \$1.00 per dozen. Late orders must be confined to the Spineless, Fewthorn and Smoothcane. The Spineless bore the heaviest crop the past season. In Missouri my Ohta raspberry has been found so hardy and productive of large, bright red fruit that it has been called Flaming Giant by a Missouri nursery.

TETONKAHA ROSE

Introduced 1912. A seedling of the wild prairie rose from Lake Tetonkaha, about eighteen miles northwest of this station, crossed with the pollen of the Siberian Rose rugosa, so that it is a combination of at least three species. In the 100 seedlings obtained from the cross, 74 were double and 26 single; all deep pink and fragrant. The stock offered consists of root sprouts from these 74 original double flowered seedlings. The flowers are fully 3 inches in diameter; the bush is perfectly hardy, flowering abundantly in June; about 18 to 25 petals, deep rich pink; very fragrant; appears desirable for dwarf hedges or as an ornamental shrub. The habit is more upright and the flowers are less concealed by the foliage than in the pure Rose rugosa. This Tetonkaha rose proves absolutely hardy and very desirable in many places. It is a very free bloomer. Plants of strong growth and as they sprout freely it should not be necessary to propagate on tender commercial stocks or from cuttings.

Small plants, one year on own roots, \$1.00 each.

ROSA RUGOSA

The well known beautiful hardy rose with dark crimson single flowers up to four inches in diameter. Attractive ornamental in autumn and early winter with large bright red fruits, which are used, with seeds removed, for food in its native home. Our own importation, descended from the original introduction from Siberia by the Imperial Botanical Gardens, at Petrograd, Russia. The Siberian form of this species is superior to the Japanese form.

Large plants, several years old, each \$1.00.

PURPLE LEAF SAND CHERRIES

An event for landscape gardeners. By crossing the Dakota Sand cherry with pollen of the Purple Leaved plum of Persia, (Prunus Pissardi), we have a number of beautiful shrubs following the sand cherry in stature and glossiness of leaf, but with the rich purple-red color of foliage which gives the Persian sire such wide popularity. In the spring of 1909, three of these seedlings were first introduced as Purple A, Purple B, and Purple C. Later Purple A was named Cistena (Sioux Indian name for "baby").

Further experience shows that Purple B is also worthy of a name since the color is as bright and the growth equal if not superior. In 1911 Purple B was named Stanapa, which is made up from two Sioux Indian words meaning "purple leaf." In my opinion these purple-leaved sand cherries will great favor for single specimens or groups on the lawn or for dwarf ornamental hedges, owing to their brilliant coloring. Stanapa is much the stronger in growth and also harder here at Brookings.

Price of Stanapa and Cistena, one year buds on native plum stock, each \$1.00.

SPEARFISH YELLOW CHOKECHERRY

Introduced fall 1924. A yellow-fruited wild chokecherry from Spearfish South Dakota. An interesting novelty. Of value mainly from the ornamental standpoint but the fruit has some culinary value. The main objection to our native chokecherry is that the trees send up so many suckers or sprouts from the roots. The trees offered are one year buds on May Day Tree stock which does not sucker.

Price of trees, one year buds 50 cents each.

SEMIPALATINSK BUSH HONEYSUCKLE

Introduced 1921. In 1913 on the dry steppes at Semipalatinsk, Siberia, I found a choice Bush Honeysuckle of tall growth with yellow or red berries. This will be hardy far north. Good for hedges, screens, or as single specimens.

Price, small stocky transplanted plants, each 50 cents; large bushy plants, 3 to 5 feet, each 75 cents.

OTHER BUSH HONEYSUCKLES

From the extensive collection of Bush Honeysuckles on the grounds of this Department some fine plants have been grown. We can supply in assortment of strong transplanted plants 3 to 4 feet in height. 50 cents each, \$4 per dozen.

WILD BLACK CURRANTS

The wild black currant (*Ribes floridum*) is abundant throughout the state. I have grown many thousand seedlings of this species through several plant generations, as found at Lake Oakwood and Gary, South Dakota, beginning in the fall of 1895. But in 1923 there was a decided break and a number of plants appeared with fruit of remarkable size and so productive that they appear worthy of propagation and introduction, although the ideal berry in quality has not yet arrived.

The wild black currant is a good ornamental shrub with large yellowish white flowers in drooping racemes and smooth black fruit.

One advantage of the wild black currant as a low shrub is that they endure more partial shade than many other shrubs. In European gardens this American species is considered worthy of a place in the ornamental shrub collection and it should receive equal consideration here at home. The foliage turns to a handsome brown red color in the fall.

TONAH CURRANT

Large plant, bearing heavy crop of fruit, weight of 10 berries, 12 grams; total weight, 335.7 grams.

ATTA CURRANT

Plant large, good cropper. Fruit large, round, 9-16 inch in diameter. Weight of 10 berries, 13.2 grams; weight of total crop, 286.7 grams.

MATO CURRANT

Large plant heavy cropper. Fruit large, berries 9-16 inch or a trifle more in diameter. Weight of 10 berries, 12.6 grams.

WANKA CURRANT

A very large plant bearing good crop of medium size fruit which is red instead of black. Weight of 10 berries, 9.3 grams. An interesting variation in color of fruit.

Price—A few plants of one year old cuttings of Tonah, Atta, Mato, and Wanka offered for the first time, each \$1.00.

GLADIOLUS

The best summer bulb for the garden. At the 1921 State Fair at Huron, this Department exhibited over 2,000 spikes in 150 choice named varieties. In 1922, 1923, and 1924 the assortment included over 500 varieties and the entire wing of the Horticulture Building at the State Fair at Huron was transformed in "The Fairyland of Flowers." These bulbs are not for sale, but 12 assorted bulbs will be given as a free premium with one annual membership in the South Dakota State Horticultural Society.

A SWEET CHOKE CHERRY

Introduced 1923. W. J. Boughen, Valley River, Manitoba, found a tree of the native choke cherry on his farm with fruit so much milder in flavor than usual that it may fairly be called a sweet or chokeless choke cherry. Offered for the first time. Mr. Boughen has the first right to name this fruit so we will await developments. At any rate this makes a choice ornamental tree, with its wealth of white blossoms in spring.

One year buds on May Day tree seedlings so they will not send up suckers from the root, each \$1.00.

SIBERIAN ALMOND—EARLIEST SHRUB TO BLOOM

Amygdalus nana L. All visitors to the college grounds in early spring are attracted by the remarkable color display of this beautiful shrub, which should be planted in every garden in the Northwest and far north into Canada. A dwarf ornamental with abundant, bright rose pink flowers, the very first of all shrubs to bloom in the spring. Good in front of other shrubs on the lawn. Grown from our importations from the dry steppes of the Semipalatinsk region of Siberia.

Strong transplanted plants, each 50 cents; \$4.00 per dozen.

A NEW SIBERIAN BASKET WILLOW

Offered for the first time spring 1921. In the fall of 1913 in the dry steppe region of Semipalatinsk, Siberia, I walked along a small creek which had almost dried up. Stumbling I seized hold of a willow and found that the branches simply would not break. So I brought home a few cuttings. You may tie bow knots in these pliable shoots, but it appears practically impossible to break them. They ought to be good as a tie willow for nursery work or for basketry.

A few cuttings, 10 for 50 cents.

RUSSIAN SILVER-LEAVED WILLOW

Offered for the first time spring 1921. Some years ago I brought from Russia a silver-leaved willow under the name *Salix regalis*. The botanical status of this tree according to Bailey, appears to be *Salix alba*, var. *splendens* or *Salix alba*, var. *argentea*, hence a form of the white willow.

These trees have made a strong growth, are perfectly hardy, and are noteworthy for the silvery foliage. A rich silver satin on both sides.

A few cuttings can be spared at 10 for 50 cents.

CHEE GRASS

For White Alkali Soils

Chee Grass is a giant grass (*Lasiogrostis splendens*) growing up to 16 feet or more on pure white alkali soils on the dry steppes at Semipalatinsk. I brought this from my fourth expedition to Siberia on the dry, open steppes near Semipalatinsk, Southern Siberia. This is a region with a total annual precipitation of eight inches, including both rain and snow, and with a temperature range of from 106 degrees in summer to 50 degrees below Fahrenheit in winter, often without snow. We have not had good luck with the seeds as they are too small, but the plant propagates freely by division of the old plant. On heavy black soil here at Brookings the plants have not attained as large size as on the white alkali soils of Semipalatinsk. In its native home the Kirghiz use the old stems for matting in the tents, but early in the spring the grass is eaten freely by all live stock. We can spare a few plants, from division of the roots. Some plants I sent to the Experiment Station at the University of Saskatoon, Saskatchewan, made a vigorous growth.

Small plants, divisions from the original stock, 10 for 50 cents.

COSSACK ALFALFA SEED

Introduced from Russia and named by Prof. N. E. Hansen. This has the world's record of increasing from a spoonful of seed in 1906 to a thousand bushels of seed in 1916. Now much more. The acreage of Cossack Alfalfa is rapidly increasing because it is extremely hardy and very productive both of forage and seed. For spring I have only a few pounds of Cossack seed, grown in 1921 on our old plot here on the Station grounds, available for special experiments. Price of Cossack alfalfa seed per small packet, 50 cents.

SEMPALATINSK ALFALFA

Described in Bulletins 141 and 167. From the dry steppes of Semipalatinsk, Siberia. Some of the farmers who have had excellent results with this alfalfa on the driest uplands of the west now abbreviate this word to Semi. A variety of great vigor and especially adapted to transplanting into cultivated rows. It is not at its best the first season as it first makes its remarkable root system. It does its own subsoiling on hardpan. Flowers yellow. I find this to be the strongest in growth of all the varieties of *Medicago falcata*.

This variety shells its seeds through a long season, which is Nature's way of securing a stand in its native country with only eight inches total annual rainfall. To improve the seeding habit from the standpoint of raising seed, let the plants stand uncut and select seed from the plants that hold their seed the longest. Some will hold the seed until frost.

Price per small packet, 50 cents.

HANSEN CLOVER

In Canada my Hansen White Siberian Sweet Clover has proven by far the hardiest of all white sweet clovers and bids fair to be worth many millions of dollars as a source of nitrogen for wheat land and for feeding stock. But in Canada this variety has been re-named Arctic Clover, which is not fair to the introducer. If a short name must be adopted it should be called Hansen Clover and not Arctic Clover. It will encourage originators and introducers of new plants more if their names are kept unchanged as provided by the rules of nomenclature.

I found this strain of white sweet clover (*Melilotus alba*) growing wild on the dry steppes of Semipalatinsk, Siberia, in 1913, a region with a total annual precipitation of only eight inches, including both rain and snow, and a temperature range of from 106 degrees above in summer to 50 degrees below zero Fahrenheit in winter, often without snow.

Seeds of Hansen Clover, per packet 50 cents.

SPECIAL OFFER

DOUBLE VALUE FOR YOUR MONEY

The Legislature has made this Society the Department of Horticulture for South Dakota and has fixed the price of annual membership at \$1.00. The reports are published by the state, but aside from the State Official List, the report is sent only to members. This provides a fund to help pay the running expenses of the Society.

The Society wishes to increase its membership.

As a free premium, select One Dollar's worth of seeds, plants or trees from the foregoing list. The order must be received before April 1, 1925. As the supply of some of these premiums is very limited, mark your second choice. One of the annual reports will be sent you at once. One book and one free premium amounting to One Dollar, will be sent postpaid for each \$1.00 received. Here is a good chance to get a valuable library of books on South Dakota trees, fruit and gardening, as well as some choice new fruits for the garden.

After April 1, 1925, the only premium available will be one of the old annual reports. This will be sent without further notice. There will be no duplication, because our card index records shows just what reports have been sent out to everyone who has ever been a member of the Society.

The life membership is fixed by the Legislature at Ten Dollars. It is highly desirable that the Society has more life members as they are our permanent source of strength and influence. Residents of S. D. who become life members may select \$10 worth of trees, plants, seeds or other premiums from this circular as a free premium. This includes a set of 18 annual reports now issued, as far as available, and one annual report as issued. All premiums sent by express at customer's expense. Address, N. E. HANSEN, Secretary, Brookings, South Dakota.

In place of seed and plant premiums, the following are offered. Select ONE of the following list for each annual membership.

No. 1—One back volume of the Annual Report of this Society.

No. 2—Prof. Green's Vegetable Gardening, 246 pages, paper cover.

No. 3—Prof. Green's Popular Fruit Growing, 323 pages, paper cover.

No. 4—Evergreens, "How I Grow Them," 95 pages, paper cover, by C. S. Harrison, and "Windbreaks and Shelter Belts," 69 pages, paper cover, by the late Prof. S. B. Green, University of Minnesota.

Terms

Cash with order. Positively no credit given, except to Government Experiment Stations. No orders booked until paid for. No plants sold in less than the quantities specified. Address

PROF. N. E. HANSEN,
Experiment Station,
Brookings, South Dakota.

GREETING

FROM DR. N. E. HANSEN

This list offers what is ready from my thirtieth year of experiments in originating new fruits at this Station. Much more remains to be done. Many more varieties worthy of trial are coming on. To the friends in many states who have shown their cordial interest in the work by sending in orders, I extend my hearty thanks. The money received from the sale of plants makes possible the fruit-breeding work on a larger scale than would otherwise be possible.

Many of these new varieties are offered only once or twice as there is not enough land for nursery propagation. The available stock is so limited that only by early orders are you sure of getting what you want. So please order promptly.